The prestressing should be carried out to at least 60% of yield strength, and may range from 60% of yield strength to 97% of yield strength. Yield strength may be determined by testing similar chains to failure.

Figure 4 presents load and elongation data, in graphical form, to compare the energy adsorption of conventionally manufactured chain links and chain links of the invention. Elongation is plotted against load. The object of the study was to determine the improved properties of individual chain links made by our process. It will be seen from the diagram that the chain links of the invention, represented by line 21, can be elongated well beyond the conventional link, and are permanently elongated by, for these specific links, 0.05 inch. Note that our invention link at R_C56 is capable of elongating to at least ~~0.80~~ 0.080 inch compared to a softer R_C50 link of conventional quench and temper which failed at 0.068 inch. The ability of our invention link at R_C56 to absorb more energy without failing than conventional (R_C50) is evident in the hysteresis curve, i.e. the dashed return portion of line 21.

A comparison was made of three different types of chain links. Chain links of conventional quench and temper sequences, even though subjected to both compressive and tensile deformation, failed, on average, after 28,304 cycles. Chain links of the bainitic structure as imparted by the above recited time-temperature parameters of the invention followed by only the tensile deformation failed, on average,